



PRODUCT SPECIFICATION

☐ DESCRIPTION : RETRACTABLE ANTENNA

☐ SUPPLIER'S PART NO : LCR-800

☐ APPLICATION : GDM-100

※ APPROVAL NO :

※ APPROVED DATE :

※ TERM OF VALIDITY :

PREPARED	CHECKED	APPROVED
/	/	/

☐ REMARK :

☐ SUPPLIER : MRW TECHNOLOGIES,LTD

☐ ADDRESS : 137-5,OKUM-RI, TANHYON-MYON, PAJU-SHI, KYUNGGI-DO, KOREA

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☐ PRESIDENT : M.J.WOO

☐ CUSTOMER : GIGATELECOM



☐ ATTACHED DOCUMENTS

▷ ANTENNA SPECIFICATION & TEST DATA

☐ REVISION:

No.	REVISED DATE	ITEM	DETAILS	SIGNATURE
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1. SPECIFICATIONS

1.1 ELECTRICAL SPECIFICATION

Frequency Range	824 ~ 894 MHz
Gain	Extended : > 1dBi
	Retracted : > 0dBi
V.S.W.R	Extended < 1.9 : 1
	Retracted < 1.9 : 1
Impedance	50 Ω
Radiation Pattern	Omni-directional
Polarization	Vertical
Max power	2W

1.2 MECHANICAL SPECIFICATION

Length	Refer to the Appendix A
Temperature	-30°C ~ +70°C
Connector type	Screw

1.3 PACKING SPECIFICATION

ITEM	Q'TY	MATERIAL	REMARK
Tray	150 EA	PVC	
Air VINYL	-	POLYESTER	
Inner Box	1,500 EA	SW 1(A)	17.4 Kgf/50mm min.
Master Carton Box	7,500 EA	DW 1(A)	25.4 Kgf/50mm min.



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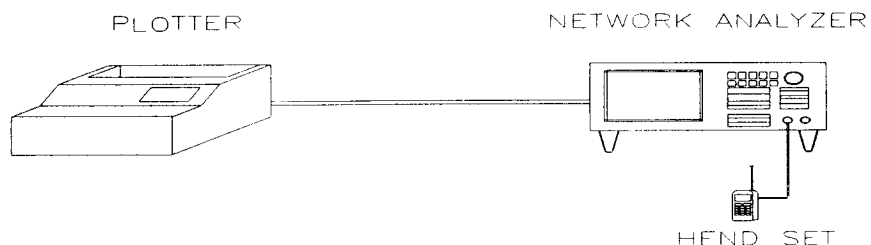
2. TEST EQUIPMENTS

EQUIPMENT	USE
Network Analyzer	V.S.W.R & IMPEDANCE
Standard Dipole Antenna	Reference Antenna in Gain Testing
Digital Calipers	Dimension
Torque Driver	Torque Force
Push Pull Gauge	Pulling Force
Temperature Chamber	Operaton Temperature Test
Spectrum Analyzer	Receiving Signal Sensitivity

3. TEST METHOD ON ELECTRICAL REQUIREMENTS

3.1 V.S.W.R

The performance of this antenna shall be in accordance with the best VSWR requirements as followings : in extended position, the maximum VSWR shall be 1.9 and in retracted position, it shall be 1.9 over the entire band.





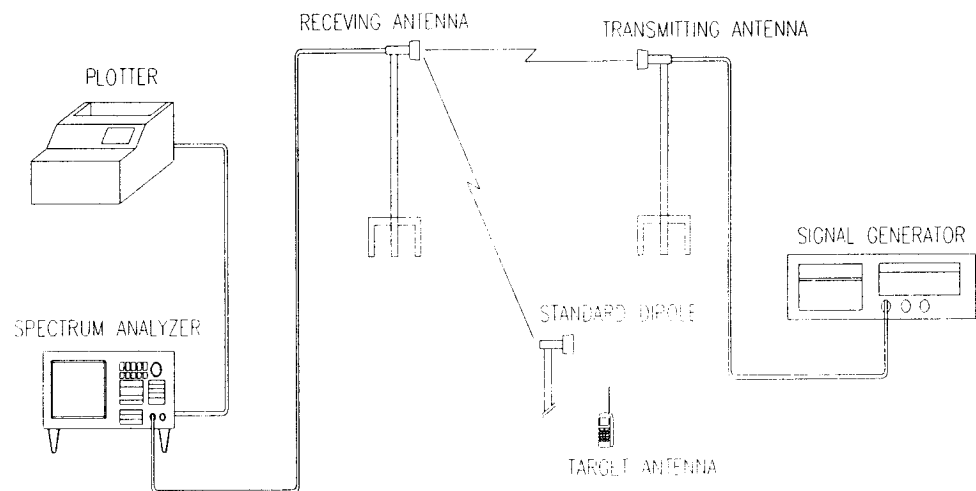
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3.2 Radiation Pattern

The radiation pattern of this antenna shall be omni-directional for the horizontal plane and bi-directional for the vertical plane in both position of extended and retracted.

3.3 GAIN

Antenna gain shall be measured in decibels relative to a half wavelength dipole reference antenna and converted in unit of dBi. The maximum gain shall be 1 dBi in extended position and 0 dBi in retracted position throughout the overall frequency.



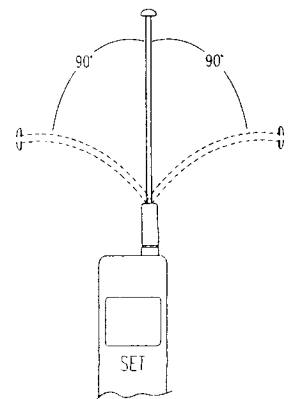
4. TEST METHODS ON MECHANICAL REQUIREMENTS

4.1 DIMENSION

REFER TO THE ATTACHED DRAWING.

4.2 BENDING

There shall not be any visible damage and shall meet electrical specification after 500 times bending at 90° from side to side.





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4.3 RETRACTION AND EXTRACTION FORCE

When the tip of antenna is pulled up for extraction in retracted position, the force should be 150-350gf and When the tip of antenna is pushed down for retraction, the release force of stopper shall be 150-350gf.

4.4 Drop Test

The handset installed with antenna is dropped from 1.6m onto the concrete bottom for 18 times.

There shall not be any major visible damage and the antenna shall perform normally as defined in this specification after the test.

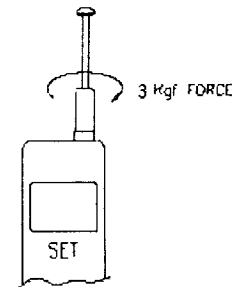
4.5 Pull Test

The antenna is assembled in the test equipment and pulling force with 4kgf is applied to the antenna for 30 seconds.

No visual deterioration shall occur, and the antenna shall satisfy the electrical demands after the test.

4.6 Torque Test

The antenna is assembled to the test equipment.
After applying the torque force with 3kgf in clockwise direction between fitting and plastic, no visual deterioration shall occur, the antenna shall satisfy the electrical demands after the test.



4.7 Cycle Test

The antenna is fully extended / retracted(1 cycle) with 10000 cycles and the retraction force is measured every 2000 cycles.

No visual deterioration shall occur and the extraction / retraction force of antenna shall keeps 150-350gf.



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5. ENVIRONMENTAL REQUIREMENT

5.1 Operating Temperature Test

The antenna is placed in the temperature chamber with -40°C for 1 hour and measured after taking out of chamber.

After that, the antenna is again placed in the temperature chamber with $+80^{\circ}\text{C}$ for 1 hour and measured after taking out of chamber.

The antenna shall not be an visible damage and it shall meet electrical spec.

6. RELIABILITY TEST RESULTS(ELECTRICAL TEST DATA ATTACHED)

6.1 Bending

Test Condition : The antenna is bent 90° left and 90° right(1 cycle) for 500 times. It shall not be visible damage and shall meet electrical spec.

	Cycle	VISUAL		ELECTRICAL	
		TEST		TEST	
		O.K	N.G	O.K	N.G
1	500 cycles				

6.2 DROP TEST

	HEIGHT	EXTRACTED		RETRACTED	
		O.K	N.G	O.K	N.G
		VISUAL		VISUAL	
1	1.6 M				
2	1.6 M				

Test Condition : Assembled to test jig of 200g and drop from 1.6m onto concrete bottom.

6.3 PULL TEST

	W(FORCE)	VISUAL		ELECTRICAL	
		O.K	N.G	O.K	N.G
		TEST		TEST	
1	4Kgf				
2	4Kgf				

Test Condition: Assembled to test jig and ulling force with 4kgf is applied to the antenna for 30 seconds.



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6.4 TORQUE TEST

	W(FORCE)	VISUAL	
1	3 Kgf	TEST	
		O.K	N.G
2	3 Kgf	TEST	
		O.K	N.G

※ Test Condition : Assembled to test jig and apply torque force with 3kgf in clockwise direction.

6.5 CYCLE TEST

No.	TEST	EXTRACTION	RETRACTION
0	0	300gf	300gf
1	0~2,000	280gf	280gf
2	2001~4,000	250gf	250gf
3	4001~6,000	230gf	230gf
4	6,001~8,000	200gf	200gf
5	8,001~10,000	180gf	180gf

6.6 OPERATING TEMPERATURE TEST

TEMP.(℃)	TIME(min.)	1st		2nd	
-30	60	VISUAL		VISUAL	
		O.K	N.G	O.K	N.G
+70	60	VISUAL		VISUAL	
		O.K	N.G	O.K	N.G

※ Test Condition : Antenna is placed in temperature chamber at -30, +70℃ for 1 hour and tested each time.

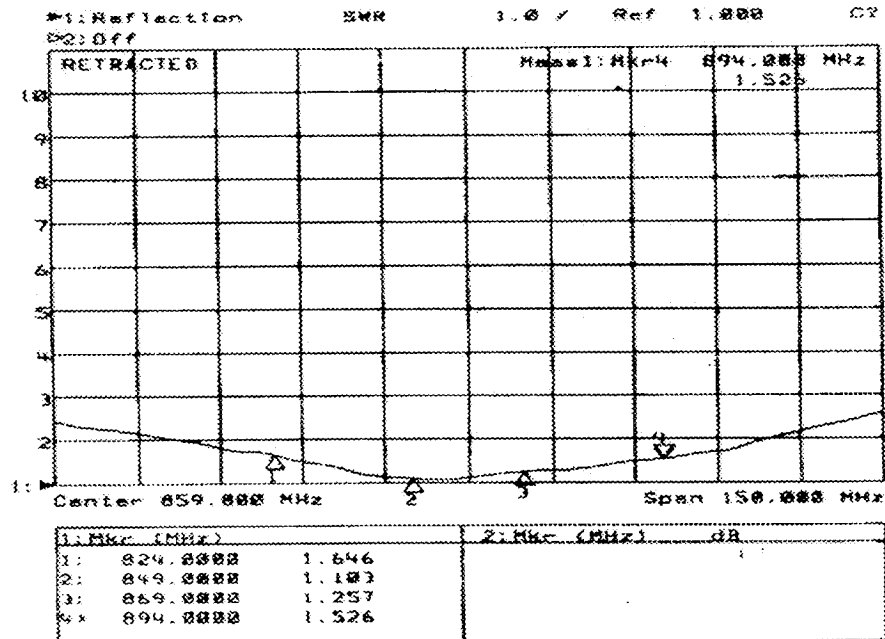


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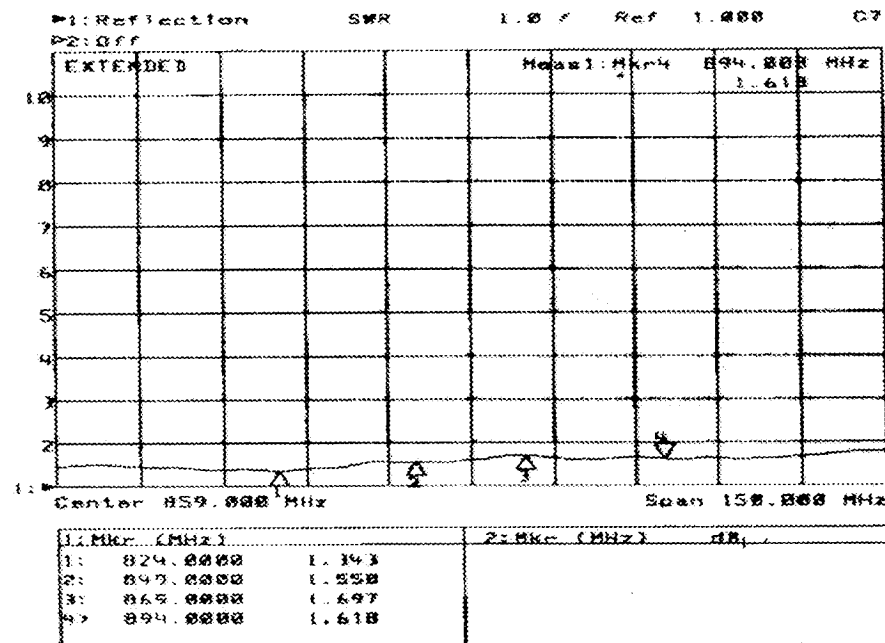
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7.1 BEFORE RELIABILITY TEST

RETRACTED



EXTENDED

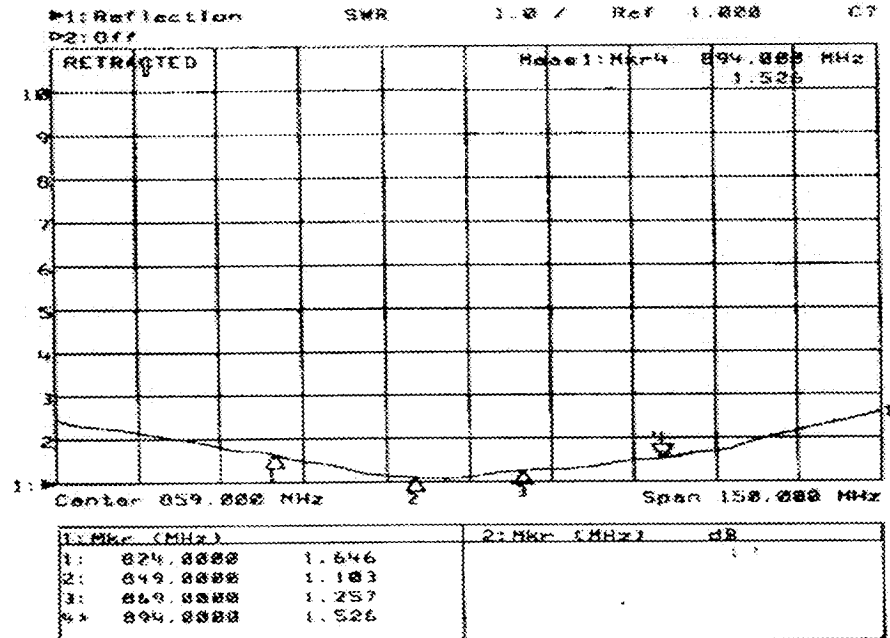




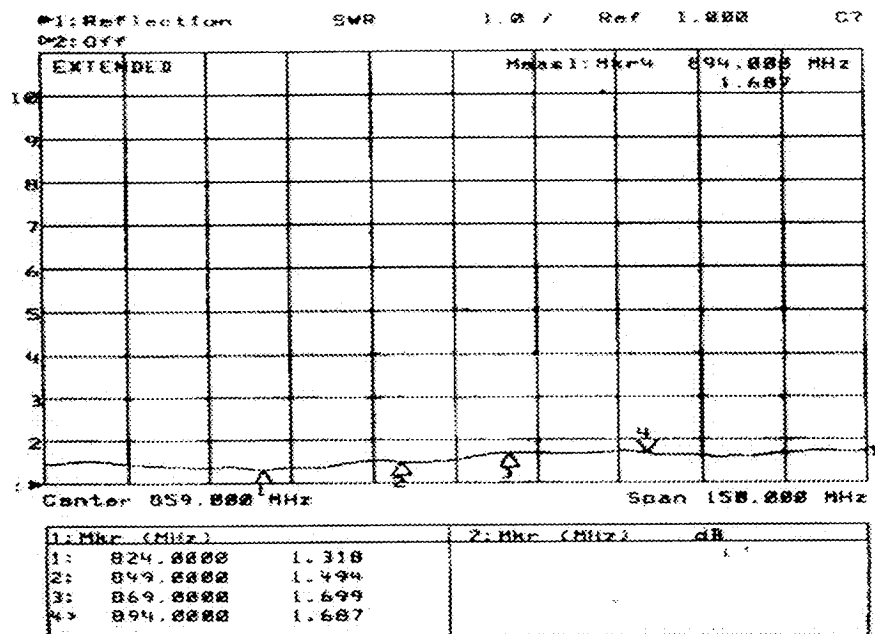
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7.2 AFTER BENDING TEST

RETRACTED



EXTENDED

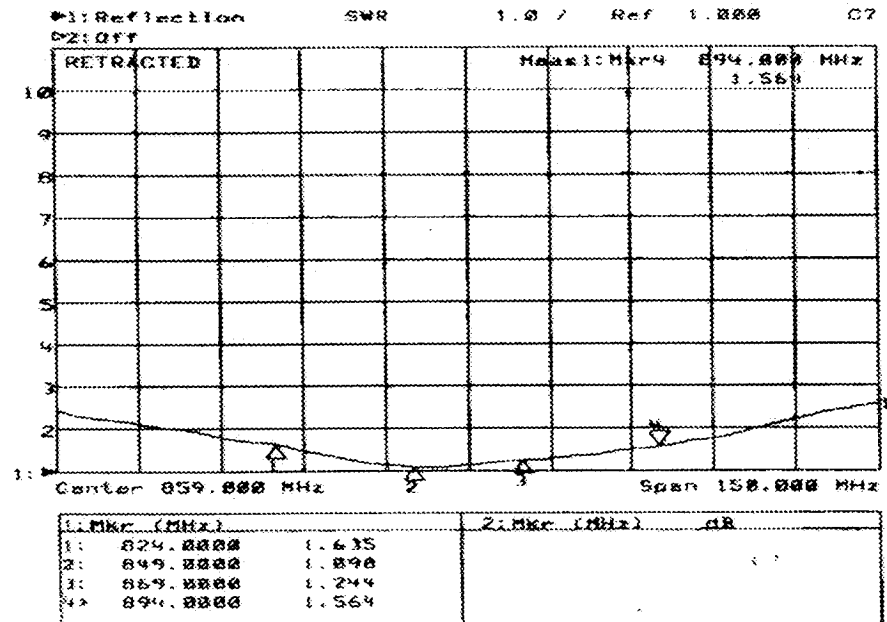




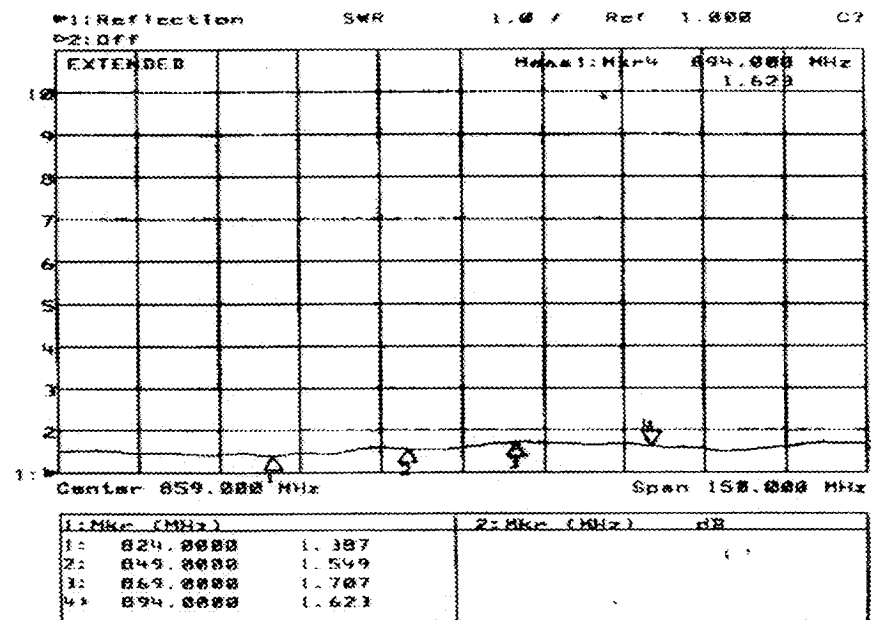
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7.3 AFTER DROP TEST

RETRACTED



EXTENDED

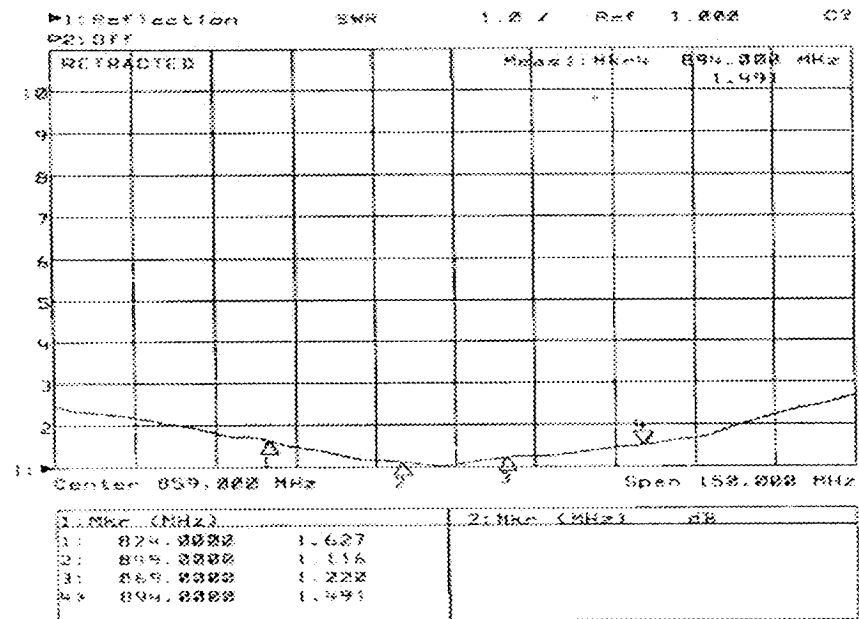




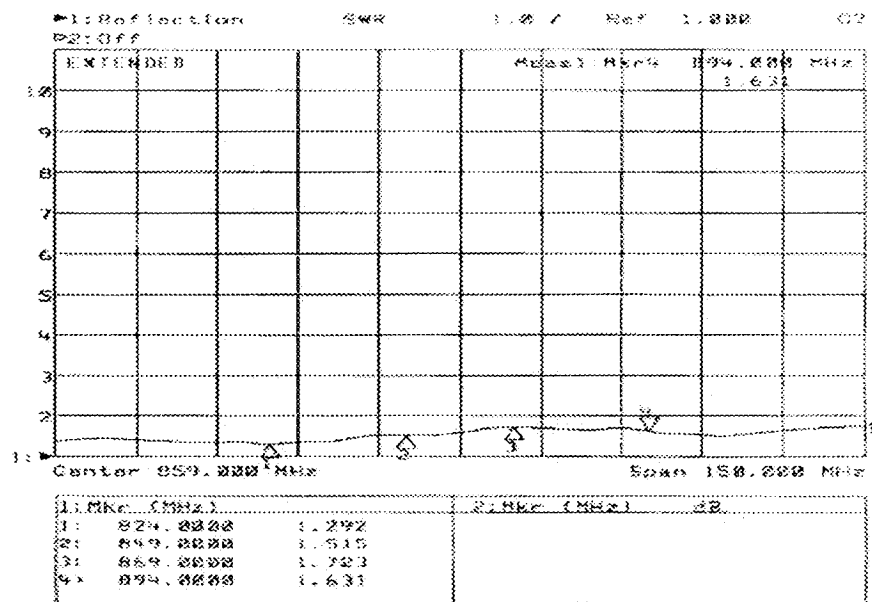
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7.4 AFTER PULL TEST

RETRACTED



EXTENDED

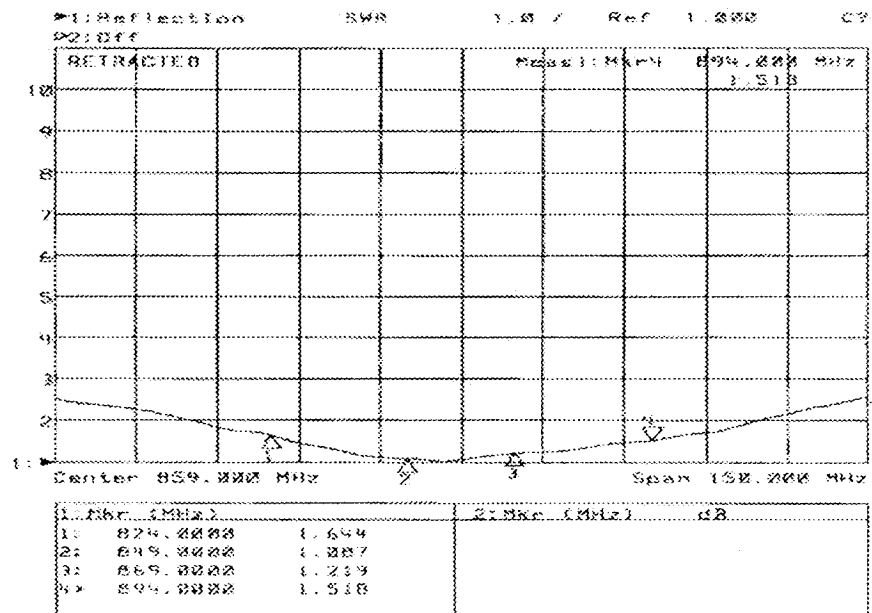




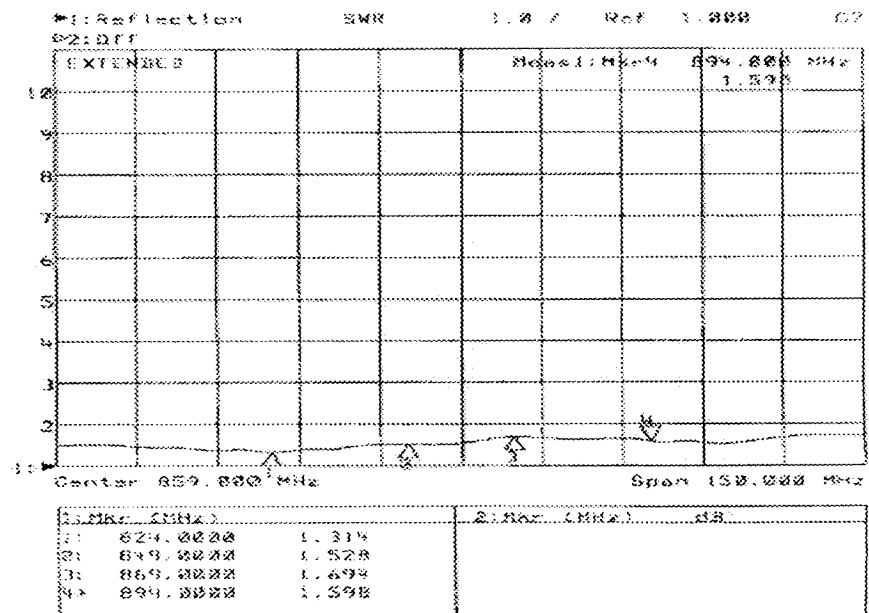
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7.5 AFTER TORQUE TEST

RETRACTED



EXTENDED

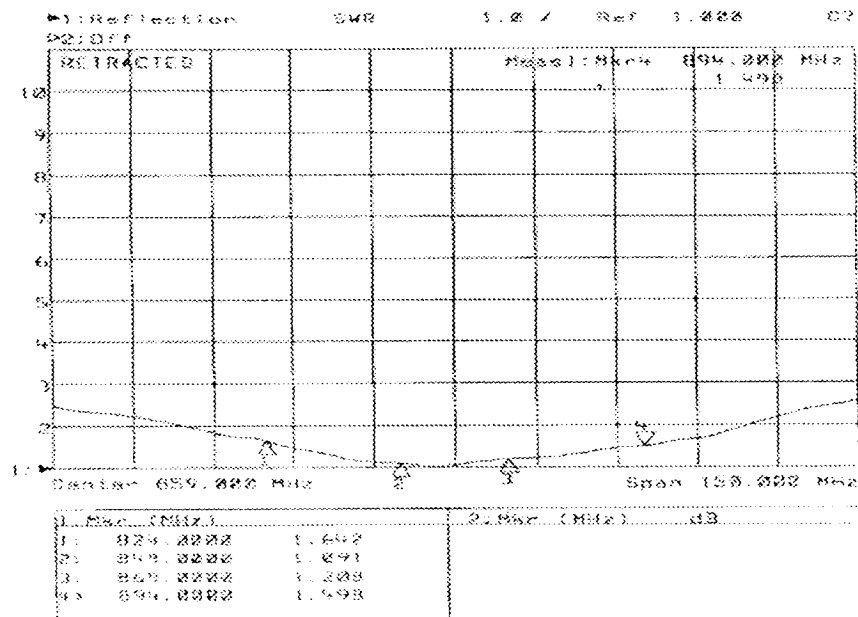




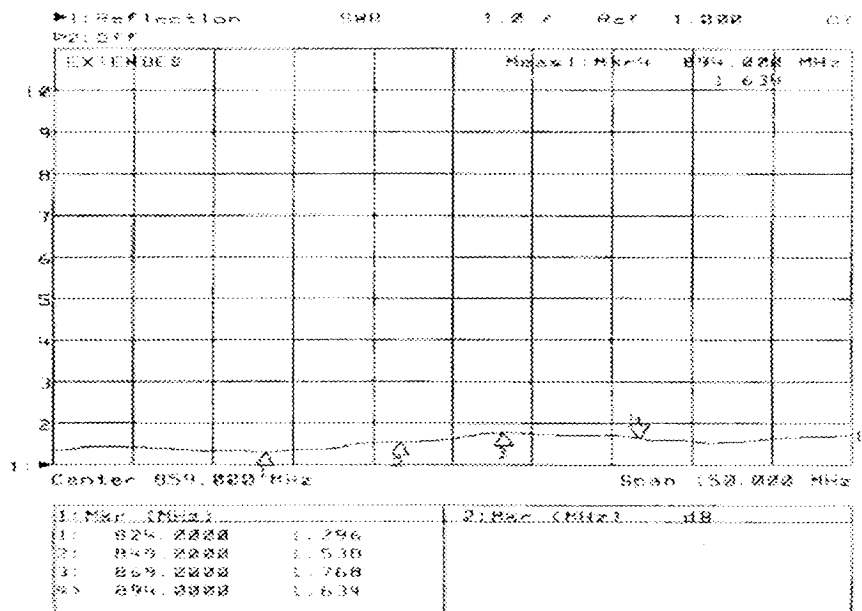
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7.6 AFTER CYCLE TEST

RETRACTED



EXTENDED



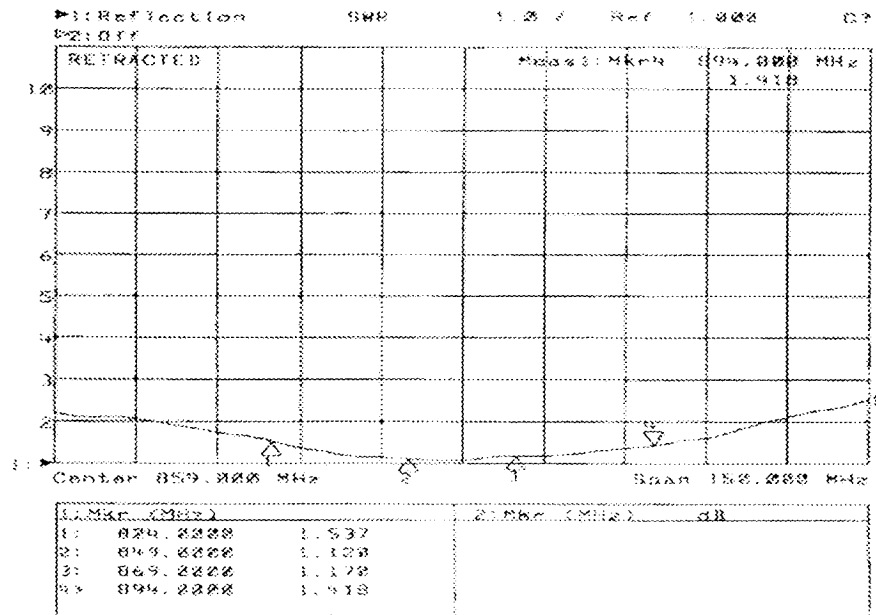


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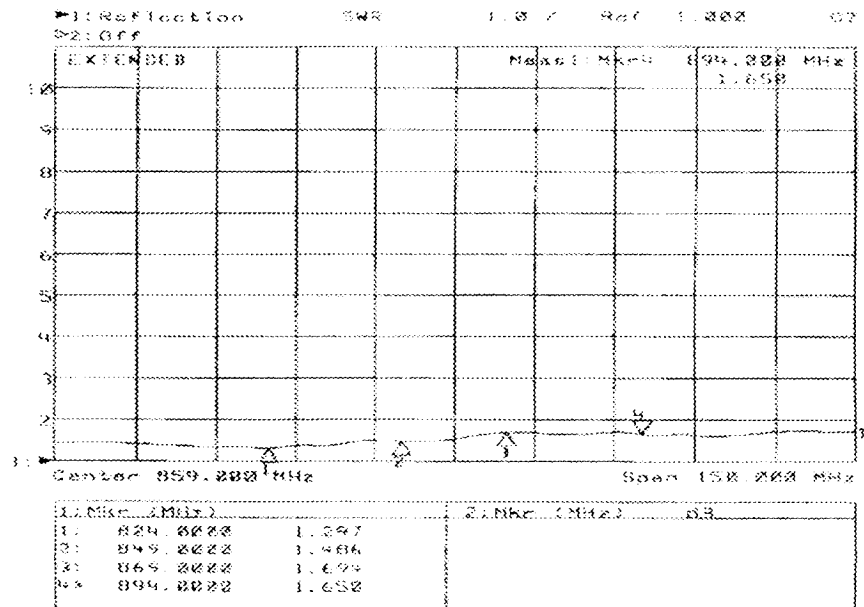
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7.7 AFTER OPERATION TEMPERATURE TEST

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EXTENDED



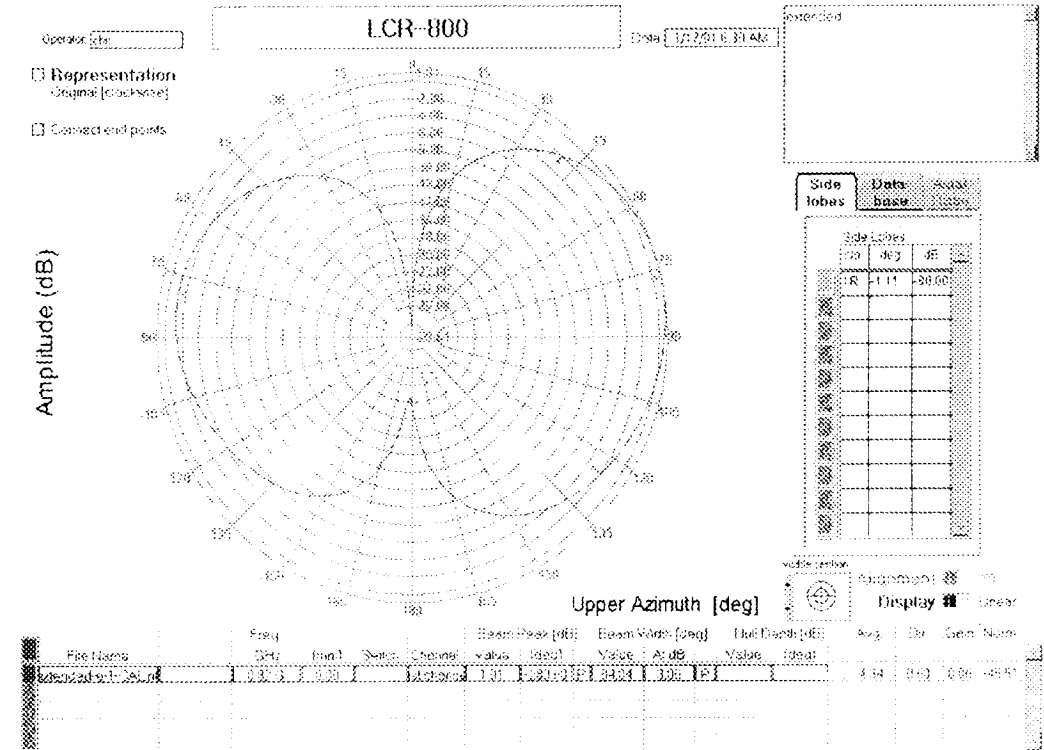


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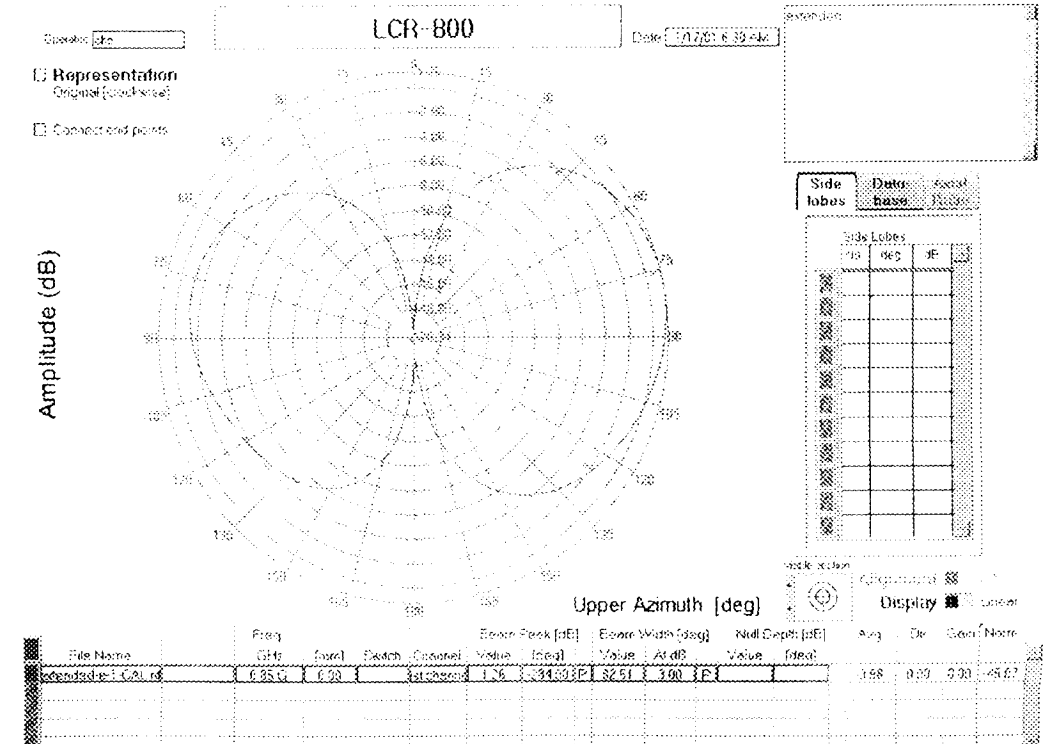
8. RADIATION PATTERN

8.1 EXTENDED

820MHz



850MHz



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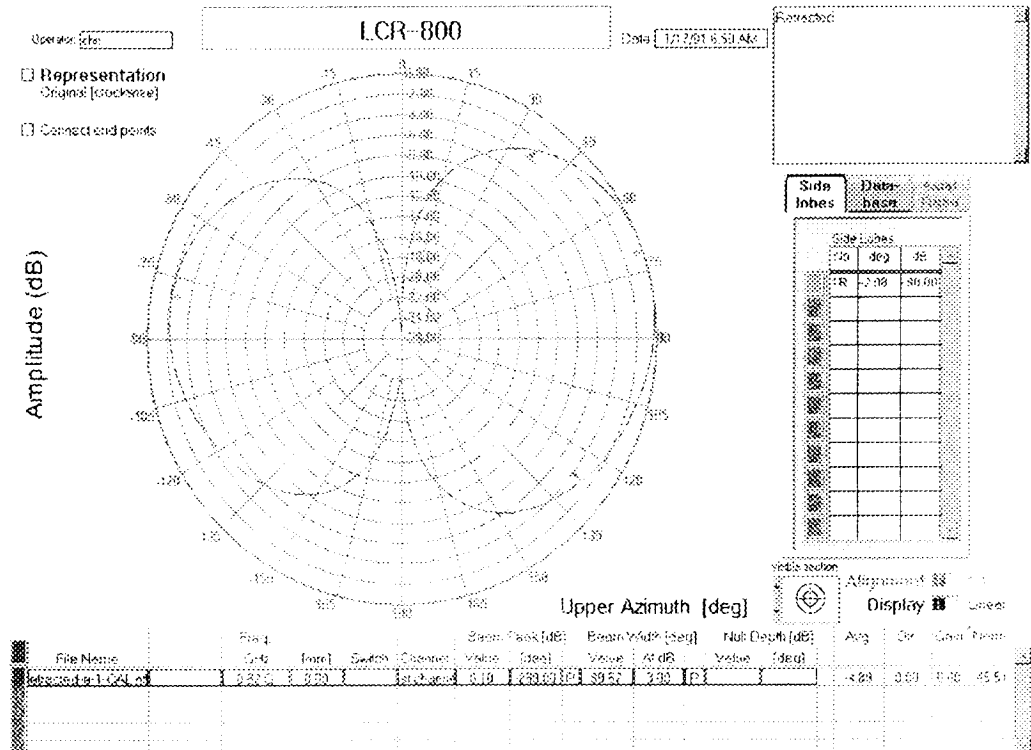
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LCR-800

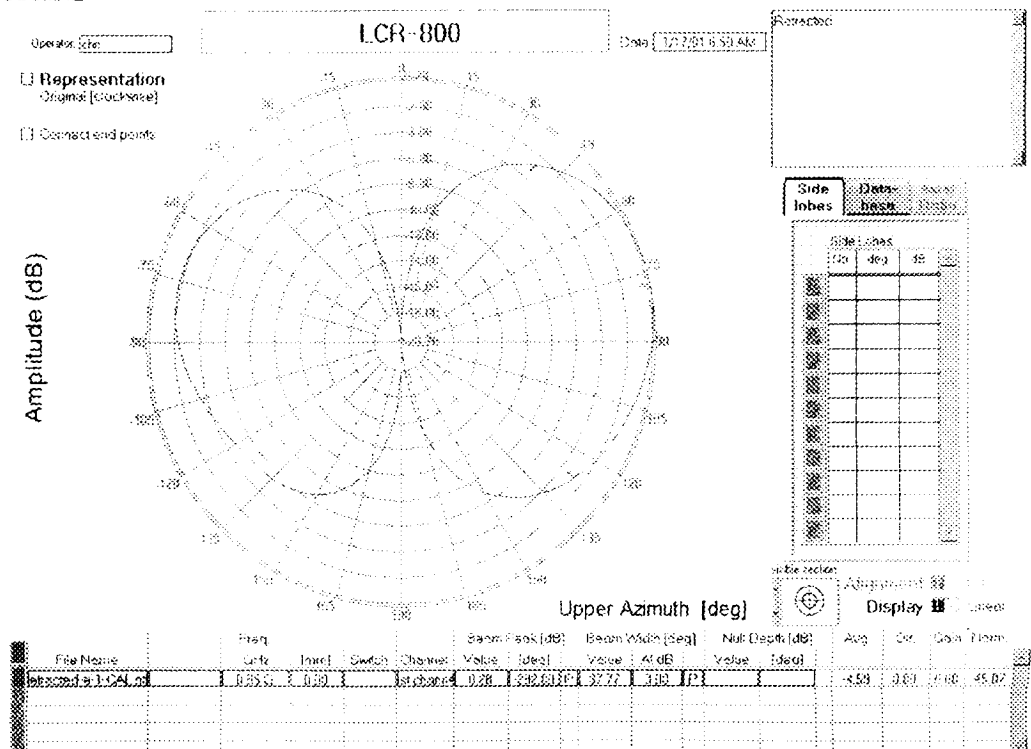
GDM-100

8.2 RETRACTED

820MHz



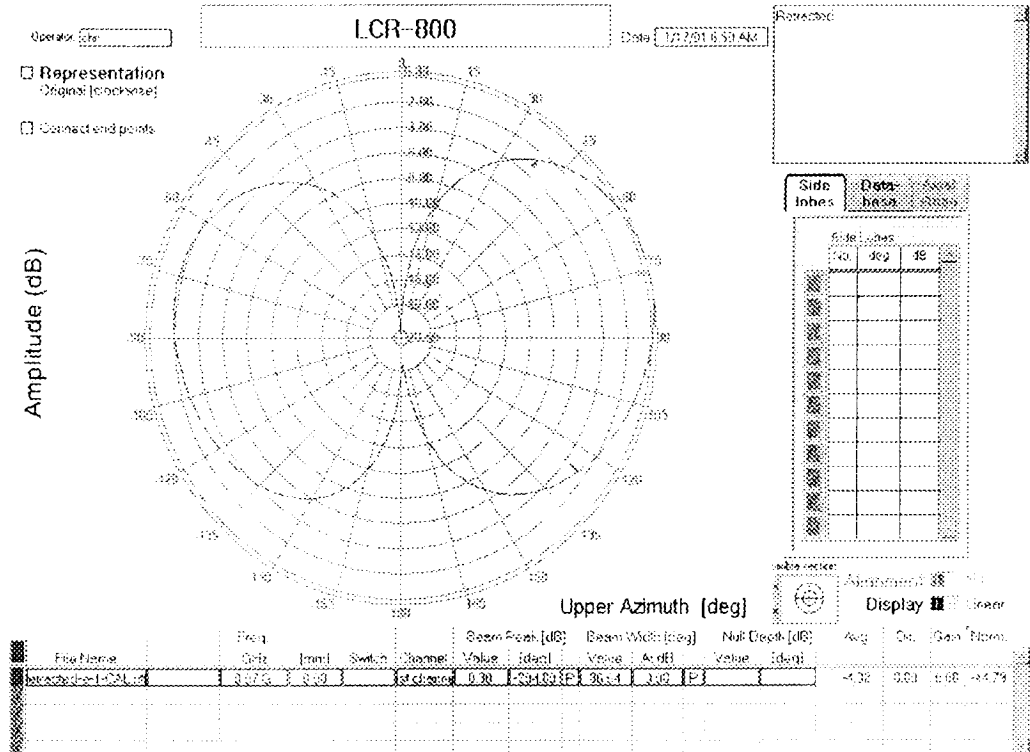
850MHz



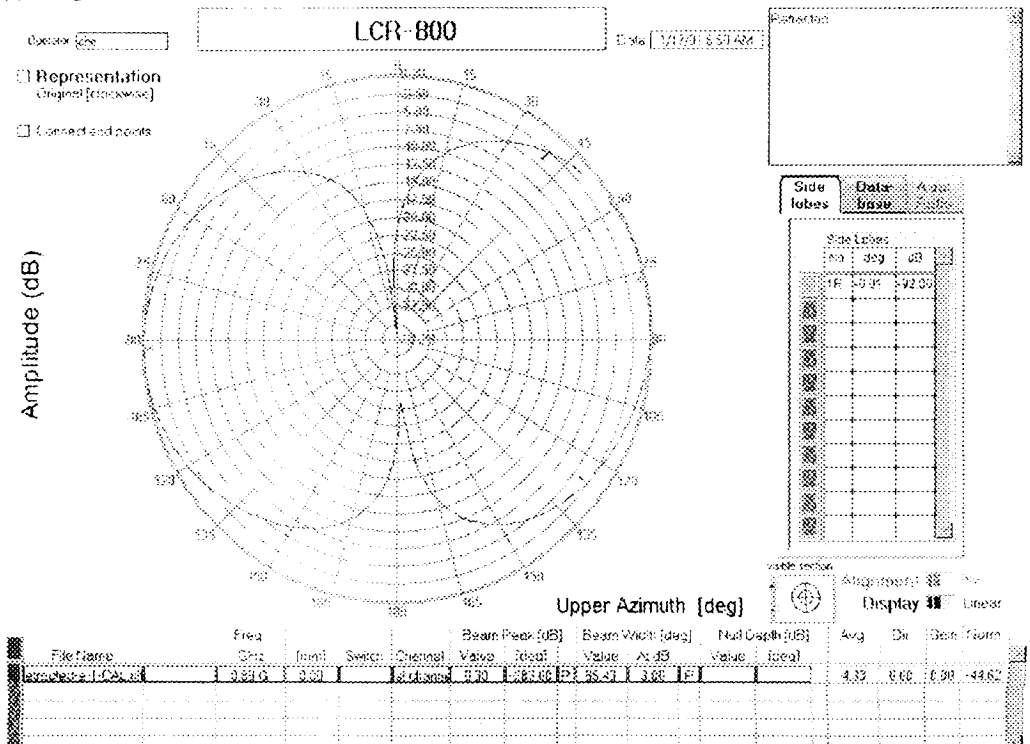


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870MHz



890MHz





Micro-RadioWave Technologies Ltd.

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SPECIFICATION DRAWING

